

## EMC QUALIFICATION TEST REPORT

**INOVONICS WIRELESS, INC.**  
**OT-BTX, EN1249**  
**OT-PMT, EN1501,**  
**OT-UMX, EN1210,**

TESTED TO CONFORM WITH:

**Emissions Standards**

for

**INFORMATION TECHNOLOGY EQUIPMENT (ITE)**

**TEST REPORT NUMBER:** 080515-1248

**DATE OF ISSUE:** JUNE 19, 2008

**DATE OF TEST COMPLETION:** MAY 21, 2008

**MANUFACTURER'S ADDRESS:** 315 CTC BLVD.  
LOUISVILLE, CO 80027

**PHONE:** 303-209-7215

Approved by:



Laboratory Director

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Total liability is limited to the amount invoiced for the testing of this EUT and the contents of this report are not warranted.

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Any questions regarding this report should be directed to:

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12/CIS11a - IEC/CISPR 11, edition 3.1 (1999-08)  
12/CIS11b - IEC/CISPR 11 (2003) & EN 55011 (1998), A1 (1999), A2 (2002)  
12/CIS11c - IEC/CISPR 11 (1997), A1 (1999), A2 (2002)  
12/CIS11d - EN 55011 (1998), A1 (1999), A2 (2001)  
12/CIS22 - IEC/CISPR 22 (1997) and EN 55022 (1998) + A1 (2000)  
12/CIS22a - IEC/CISPR 22 (1993) and EN 55022 (1994), Amendment 1:1995 & Amendment 2: 1996  
12/CIS22b - CNS13438 (1997)  
12/EM02a - IEC 61000-3-2, Edition 2.1 (2001-10) and EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000)  
12/EM02b - IEC 61000-3-2, Second Edition (2000-08)  
12/EM02c - BS EN 61000-3-2, ED. 2 (2001); IEC 61000-3-2, ED. 2 (2000)  
12/EM03 - IEC 61000-3-3 (1995); EN 61000-3-3 (1995); AS/NZS 2279.3 (1995)  
12/EM03a - IEC 1000-3-3 (1994-12)  
12/EM03b - IEC 61000-3-3 Edition 1.1 (2002-03) & EN 61000-3-3, A1 (2001)  
12/EM03c - IEC 61000-3-3 (1994) with Amendment 1 (2001)  
12/EM03d - IEC 61000-3-3 (1995) + A1 (2001)  
12/FCC15b - ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart B  
12/T51 - AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997)  
12/I01 - IEC 61000-4-2, Ed. 2.1 (2001), A1, A2; EN 61000-4-2  
12/I02 - IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002)  
12/I03 - IEC 61000-4-4 (1995), A1 (2002), A2 (2001); EN 61000-4-4  
12/I04 - IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5  
12/I05 - IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6  
12/I06 - IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8  
12/I07 - IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11

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**EMC QUALIFICATION TEST REPORT****OT-BTX, EN1249**  
**OT-PMT, EN1501**  
**OT-UMX, EN1210****1.0 EXECUTIVE SUMMARY****1.1 PURPOSE**

The purpose of this report is to present EMC test data and demonstrate conformity to the requirements of the prescribed standards for Emissions and/or Immunity.

**1.2 CONFORMITY**

The test article was tested to the standards listed in Table I with the indicated conformity status. All test methods were performed in accordance to with the standards listed.

TABLE I. EMISSIONS CONFORMITY SUMMARY

TEST TYPE	COMPLIANCE STANDARD	TESTING TECHNIQUE	TEST DESCRIPTION	PRODUCT CLASSIFICATION	CONFORMITY STATUS
EMISSIONS	<u>FCC Part 15</u> <u>ICES-003</u> <u>AS/NZ 3548</u>	<input checked="" type="checkbox"/> IEC/EN 55022	Unintentional Radiated Emissions	Class B	<b>PASSED</b>

**1.3 EQUIPMENT UNDER TEST (EUT)**

EUT NAME: **OT-BTX**  
EUT MODEL/PART NUMBER(S): **EN1249**  
EUT SERIAL NUMBER(S): **03566064**

EUT NAME: **OT-PMT**  
EUT MODEL/PART NUMBER(S): **EN1501**  
EUT SERIAL NUMBER(S): **03496989**

EUT NAME: **OT-UMX**  
EUT MODEL/PART NUMBER(S): **EN1210**  
EUT SERIAL NUMBER(S): **03609689**

**2.0 EMISSIONS TEST STANDARDS**

EN 55022 for IT Equipment	Class B
FCC Part 15, Subpart B	Class B
ICES-003	Class B
AS/NZ 3548	Class B

**2.1  UNINTENTIONAL RADIATED EMISSIONS – 30 MHZ TO 1000 MHZ**

Measurements for *Radiated Emissions* were performed over the frequency range of 30 MHz to 1000 MHz in the horizontal and vertical antenna polarities to the requirements of:

**FCC Part 15** **Class B**

Testing Conditions

Date of Test: May 21, 2008  
 Temperature: 19°C  
 Relative Humidity: 18%  
 Test Voltage: 3 V Battery  
 Test Operator: lws

Test Location**Criterion Technology Open Area Test Site**Test Distance

Antenna Distance: **3 meter(s)** **Final Measurement(s)**

Test Equipment

- Hewlett-Packard Spectrum Analyzer, HP 8566B  Hewlett-Packard Quasi-Peak Adapter, HP 85650A  
 Hewlett-Packard Tracking Generator, HP 85645A  
 Rohde and Schwarz Receiver, ESHS-30  Rohde and Schwarz Receiver, ESVS-30  
 Mini Circuits Pre-Amp #2  Veratech Pre-Amp #3  
 Chase BiLog Antenna, Model CB6111  Antenna Research, Horn Antenna, Model DRG118/A  
 EMCO BiConnical Antenna, Model 3108  EMCO Log Periodic Antenna, Model 3146

Test Accessories:

Test Results of Radiated Emissions

Test Status: **PASSED** Frequency Range: **30 MHz to 1000 MHz**

Minimum Margin to Limit: **-16.07** dB at **36.0000** MHz

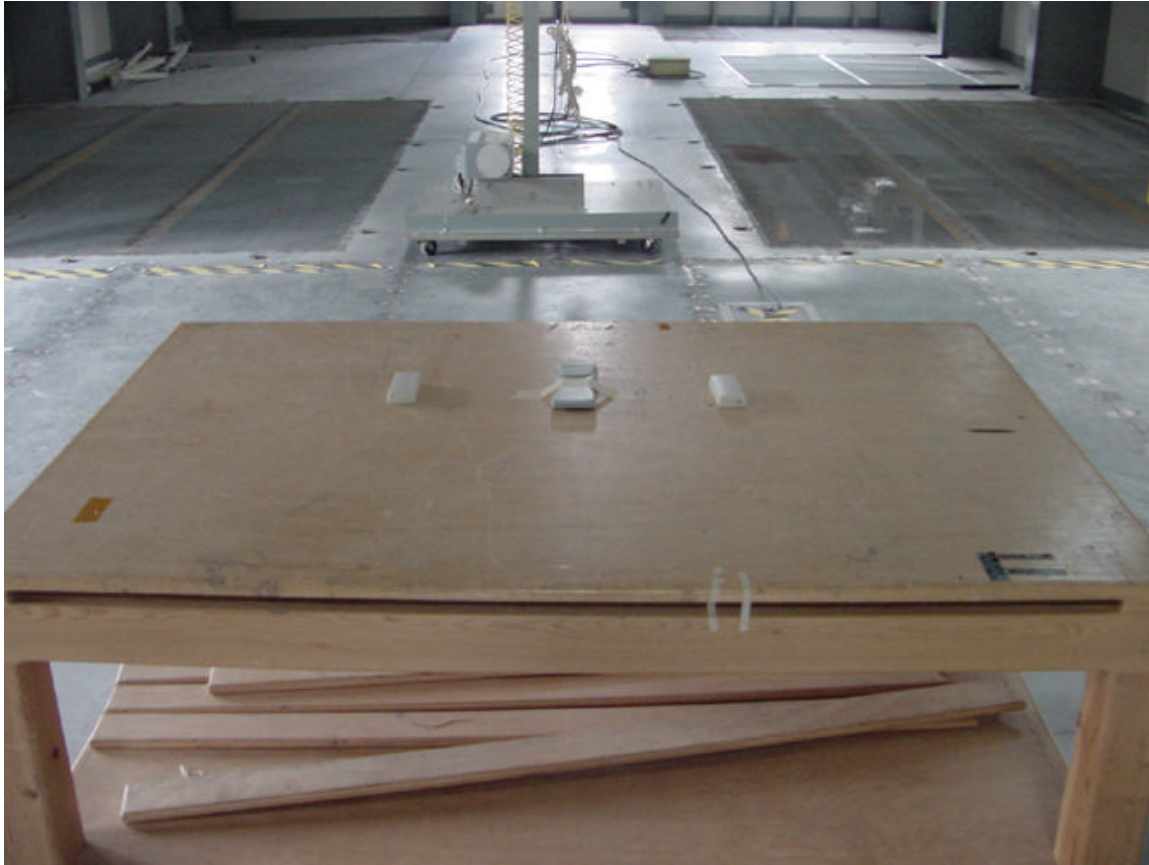
Remarks

See: **APPENDIX A** for EUT Photographs **APPENDIX B** for Data Sheets  
**APPENDIX D** for Test Equipment Calibration Status

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### 3.0 APPENDIX A: EUT PHOTOGRAPHS

#### 3.1 UNINTENTIONAL RADIATED EMISSIONS



4.0 APPENDIX B: DATA SHEETS

4.1 UNINTENTIONAL RADIATED EMISSIONS PLOT – 30 MHZ TO 1 GHZ

Criterion Technology  
EUT: OT-BTX, EN1249  
EUT: OT-PMT, EN1501  
EUT: OT-UMX, EN1210

Manufacturer: Inovonics Wireless, Inc.

Tester: lws

EUT Information: Battery Powered

Test Information: 3m, FCC Part 15 Class B

Test Cond: Temp: 19°C

Date: May 21, 2008

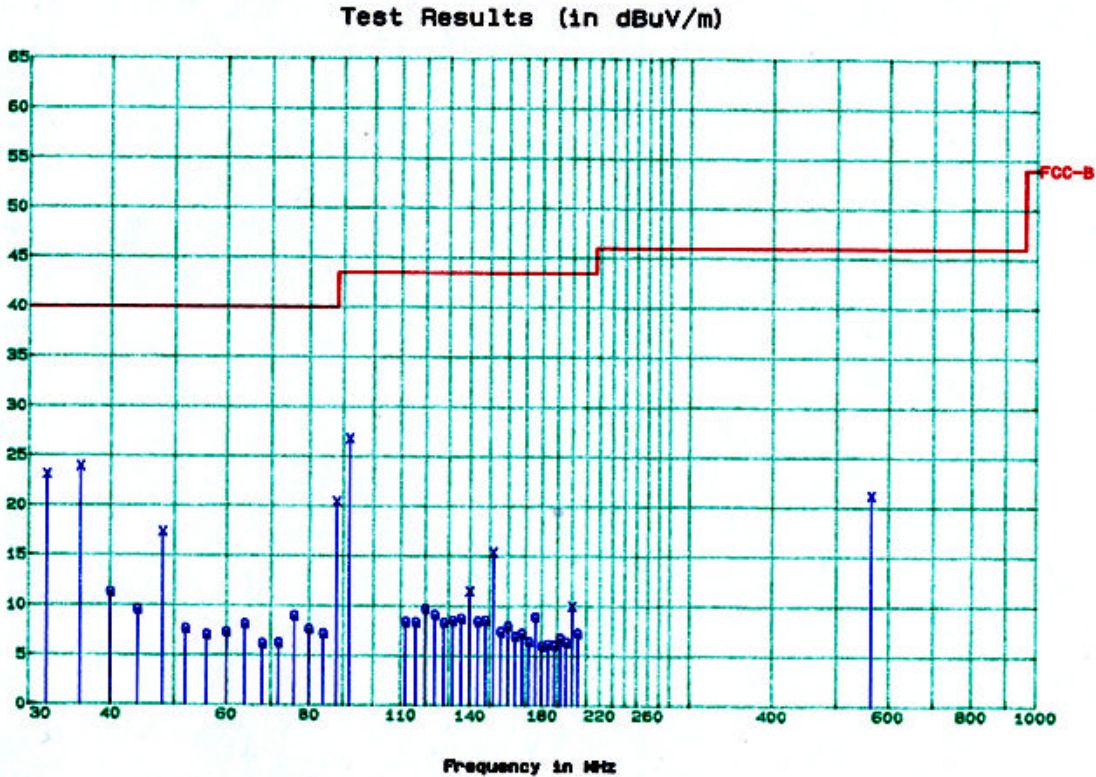
S/N: 03566064

S/N: 03496989

S/N: 03609689

SpiD: 080515-1248

Humidity: 18%



**4.2 UNINTENTIONAL RADIATED EMISSIONS TABLE – 30 MHZ TO 1 GHZ****Notes:**

The third column below contains alpha characters which pertain to the type of measurements made. The following are the definitions for those characters: q = Quasi Peak, m = Maximized (cable, rotation and antenna height), s = scanned but no data taken, and a = average. For the first character in column four, a '-' indicates that value is below the limit while an '\*' indicates that value is above the limit

If the list is sorted using "I-sort", then quasi-peak and average levels are weighted higher than peak levels and are moved to the front of the scan list.

The following keys help to better understand the data:

TT: Turntable position in degrees

Hght: Height of antenna in centimeters

Az: Azimuth, V = Vertical, H= Horizontal

Minimum Margin to Limit: **-16.07** dB at **36.0000** MHz

Criterion Technology Wed May 21 12:32:55 2008

EUT: OT-BTX, EN1249

S/N: 03566064

EUT: OT-PMT, EN1501

S/N: 03496989

EUT: OT-UMX, EN1210

S/N: 03609689

Manufacturer: Inovonics Wireless, Inc.

Tester: lws

Special ID: 080515-1248

EUT Information: battery powered

Test information: 3m, FCC Part 15 Class B

**Table 1: Scan List, sorted by margin to limit FCC-B, -40.0dB filter**

<u>Freq. MHz</u>	<u>Value dBuV/m</u>	<u>Sts</u>	<u>Margin to FCC-B limits (dB)</u>	<u>TT</u>	<u>Hght</u>	<u>Az</u>	<u>Comment</u>
36.0000	23.93	m	-16.07	86	100	V	4MHz clk
91.9798	26.78	m	-16.74	270	100	V	4MHz clk
32.0000	23.11	m	-16.89	79	100	V	4MHz clk
87.9500	20.43	m	-19.57	337	150	V	4MHz clk
48.0000	17.35	m	-22.65	67	149	H	4MHz clk
565.4682	21.20	m	-24.82	91	150	H	.
152.0000	15.41	m	-28.11	180	150	V	4MHz clk
40.0000	11.28	q	-28.72	-1	150	V	4MHz clk
44.0000	9.56	q	-30.44	270	150	H	4MHz clk
76.0000	8.99	q	-31.01	90	150	V	4MHz clk
64.0000	8.15	q	-31.85	270	150	V	4MHz clk
140.0000	11.48	m	-32.04	-1	150	V	4MHz clk
52.0000	7.66	q	-32.34	180	150	H	4MHz clk
80.0000	7.66	q	-32.34	90	150	V	4MHz clk
60.0000	7.31	q	-32.69	180	150	H	4MHz clk
84.0000	7.20	q	-32.80	270	150	H	4MHz clk
56.0000	7.06	q	-32.94	180	150	H	4MHz clk
200.0000	10.03	m	-33.49	180	201	H	4MHz clk
72.0000	6.27	q	-33.73	90	150	H	4MHz clk
120.0000	9.72	q	-33.80	90	150	H	4MHz clk
68.0000	6.19	q	-33.81	180	150	V	4MHz clk
124.0000	9.13	q	-34.39	270	150	H	4MHz clk
176.0000	8.93	q	-34.59	180	150	H	4MHz clk
136.0000	8.76	q	-34.76	180	150	H	4MHz clk
148.0000	8.56	q	-34.96	180	150	V	4MHz clk
132.0000	8.52	q	-35.00	90	150	H	4MHz clk
144.0000	8.47	q	-35.05	-1	150	H	4MHz clk
112.0000	8.40	q	-35.12	90	150	H	4MHz clk



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116.0000	8.35	q	-35.17	90	150	H	4MHz clk
128.0000	8.33	q	-35.19	270	150	H	4MHz clk
160.0000	8.01	q	-35.51	270	150	V	4MHz clk
156.0000	7.43	q	-36.09	270	150	H	4MHz clk
204.0000	7.30	q	-36.22	270	150	V	4MHz clk
168.0000	7.28	q	-36.24	-1	150	H	4MHz clk
164.0000	6.97	q	-36.55	270	150	H	4MHz clk
192.0000	6.82	q	-36.70	90	150	V	4MHz clk
172.0000	6.46	q	-37.06	90	150	V	4MHz clk
196.0000	6.39	q	-37.13	90	150	H	4MHz clk
184.0000	6.18	q	-37.34	90	150	V	4MHz clk
188.0000	6.09	q	-37.43	-1	150	H	4MHz clk
180.0000	6.02	q	-37.50	90	150	H	4MHz clk

Table 2: Scan List for FCC-B, sorted by Frequency, -40.0dB filter

<u>Freq. MHz</u>	<u>Final Value dBuV/m</u>	<u>Sts</u>	<u>Margin to FCC-B limits (dB)</u>	<u>TT</u>	<u>Hght</u>	<u>Az</u>	<u>Comment</u>
32.0000	23.11	m	-16.89	79	100	V	4MHz clk
36.0000	23.93	m	-16.07	86	100	V	4MHz clk
40.0000	11.28	q	-28.72	-1	150	V	4MHz clk
44.0000	9.56	q	-30.44	270	150	H	4MHz clk
48.0000	17.35	m	-22.65	67	149	H	4MHz clk
52.0000	7.66	q	-32.34	180	150	H	4MHz clk
56.0000	7.06	q	-32.94	180	150	H	4MHz clk
60.0000	7.31	q	-32.69	180	150	H	4MHz clk
64.0000	8.15	q	-31.85	270	150	V	4MHz clk
68.0000	6.19	q	-33.81	180	150	V	4MHz clk
72.0000	6.27	q	-33.73	90	150	H	4MHz clk
76.0000	8.99	q	-31.01	90	150	V	4MHz clk
80.0000	7.66	q	-32.34	90	150	V	4MHz clk
84.0000	7.20	q	-32.80	270	150	H	4MHz clk
87.9500	20.43	m	-19.57	337	150	V	4MHz clk
91.9798	26.78	m	-16.74	270	100	V	4MHz clk
112.0000	8.40	q	-35.12	90	150	H	4MHz clk
116.0000	8.35	q	-35.17	90	150	H	4MHz clk
120.0000	9.72	q	-33.80	90	150	H	4MHz clk
124.0000	9.13	q	-34.39	270	150	H	4MHz clk
128.0000	8.33	q	-35.19	270	150	H	4MHz clk
132.0000	8.52	q	-35.00	90	150	H	4MHz clk
136.0000	8.76	q	-34.76	180	150	H	4MHz clk
140.0000	11.48	m	-32.04	-1	150	V	4MHz clk
144.0000	8.47	q	-35.05	-1	150	H	4MHz clk
148.0000	8.56	q	-34.96	180	150	V	4MHz clk
152.0000	15.41	m	-28.11	180	150	V	4MHz clk
156.0000	7.43	q	-36.09	270	150	H	4MHz clk
160.0000	8.01	q	-35.51	270	150	V	4MHz clk
164.0000	6.97	q	-36.55	270	150	H	4MHz clk
168.0000	7.28	q	-36.24	-1	150	H	4MHz clk
172.0000	6.46	q	-37.06	90	150	V	4MHz clk
176.0000	8.93	q	-34.59	180	150	H	4MHz clk
180.0000	6.02	q	-37.50	90	150	H	4MHz clk
184.0000	6.18	q	-37.34	90	150	V	4MHz clk
188.0000	6.09	q	-37.43	-1	150	H	4MHz clk
192.0000	6.82	q	-36.70	90	150	V	4MHz clk
196.0000	6.39	q	-37.13	90	150	H	4MHz clk
200.0000	10.03	m	-33.49	180	201	H	4MHz clk
204.0000	7.30	q	-36.22	270	150	V	4MHz clk
565.4682	21.20	m	-24.82	91	150	H	.

**Table 3: Complete Scan List Sorted by Frequency**

Freq, MHz	I-val before xducr factors dBuV	Final Value dBuV/m	Sts	TT	Hght	Az	Time	Comment
32.0000	28.11	23.11	m	79	100	V	Wed May 21 11:21:35 2008	4MHz clk
36.0000	30.83	23.93	m	86	100	V	Wed May 21 11:25:01 2008	4MHz clk
40.0000	19.98	11.28	q	-1	150	V	Wed May 21 09:38:10 2008	4MHz clk
44.0000	20.44	9.56	q	270	150	H	Wed May 21 09:50:43 2008	4MHz clk
48.0000	30.47	17.35	m	67	149	H	Wed May 21 11:28:44 2008	4MHz clk
52.0000	22.53	7.66	q	180	150	H	Wed May 21 09:48:46 2008	4MHz clk
56.0000	22.74	7.06	q	180	150	H	Wed May 21 09:48:48 2008	4MHz clk
60.0000	23.46	7.31	q	180	150	H	Wed May 21 09:48:50 2008	4MHz clk
64.0000	24.24	8.15	q	270	150	V	Wed May 21 09:52:51 2008	4MHz clk
68.0000	22.11	6.19	q	180	150	V	Wed May 21 09:46:50 2008	4MHz clk
72.0000	21.77	6.27	q	90	150	H	Wed May 21 09:42:51 2008	4MHz clk
76.0000	23.94	8.99	q	90	150	V	Wed May 21 09:44:50 2008	4MHz clk
80.0000	22.13	7.66	q	90	150	V	Wed May 21 09:44:52 2008	4MHz clk
84.0000	20.93	7.20	q	270	150	H	Wed May 21 09:51:06 2008	4MHz clk
87.9500	33.80	20.43	m	337	150	V	Wed May 21 10:59:23 2008	4MHz clk
91.9798	39.61	26.78	m	270	100	V	Wed May 21 11:06:26 2008	4MHz clk
112.0000	18.74	8.40	q	90	150	H	Wed May 21 09:43:09 2008	4MHz clk
116.0000	18.54	8.35	q	90	150	H	Wed May 21 09:43:12 2008	4MHz clk
120.0000	19.25	9.72	q	90	150	H	Wed May 21 09:43:14 2008	4MHz clk
124.0000	18.65	9.13	q	270	150	H	Wed May 21 09:51:25 2008	4MHz clk
128.0000	17.92	8.33	q	270	150	H	Wed May 21 09:51:28 2008	4MHz clk
132.0000	18.09	8.52	q	90	150	H	Wed May 21 09:43:21 2008	4MHz clk
136.0000	18.27	8.76	q	180	150	H	Wed May 21 09:49:33 2008	4MHz clk
140.0000	21.03	11.48	m	-1	150	V	Wed May 21 09:39:06 2008	4MHz clk
144.0000	18.19	8.47	q	-1	150	H	Wed May 21 09:41:20 2008	4MHz clk
148.0000	18.55	8.56	q	180	150	V	Wed May 21 09:47:29 2008	4MHz clk
152.0000	25.77	15.41	m	180	150	V	Wed May 21 09:47:38 2008	4MHz clk
156.0000	18.15	7.43	q	270	150	H	Wed May 21 09:51:42 2008	4MHz clk
160.0000	18.88	8.01	q	270	150	V	Wed May 21 09:53:37 2008	4MHz clk
164.0000	18.11	6.97	q	270	150	H	Wed May 21 09:51:46 2008	4MHz clk
168.0000	18.86	7.28	q	-1	150	H	Wed May 21 09:41:33 2008	4MHz clk
172.0000	18.07	6.46	q	90	150	V	Wed May 21 09:45:41 2008	4MHz clk
176.0000	20.38	8.93	q	180	150	H	Wed May 21 09:49:54 2008	4MHz clk
180.0000	18.18	6.02	q	90	150	H	Wed May 21 09:43:47 2008	4MHz clk
184.0000	18.41	6.18	q	90	150	V	Wed May 21 09:45:47 2008	4MHz clk
188.0000	18.07	6.09	q	-1	150	H	Wed May 21 09:41:44 2008	4MHz clk
192.0000	18.67	6.82	q	90	150	V	Wed May 21 09:45:52 2008	4MHz clk
196.0000	17.94	6.39	q	90	150	H	Wed May 21 09:43:56 2008	4MHz clk
200.0000	21.11	10.03	m	180	201	H	Wed May 21 11:42:44 2008	4MHz clk
204.0000	18.42	7.30	q	270	150	V	Wed May 21 09:54:00 2008	4MHz clk
565.4682	21.99	21.20	m	91	150	H	Wed May 21 11:15:32 2008	.

**5.0 APPENDIX C: PRODUCT INFORMATION FORM****CRITERION TECHNOLOGY PRODUCT INFORMATION FORM****General Information**Date 5/21/08Company Name: Inovonics Wireless, Inc.Company Address: 315 CTC Blvd., Louisville, CO 80027

Contacts:

Compliance Engineer: Christian Huber Phone: 303-209-7215Design Engineer: Christian Huber Phone: 303-209-7215Email: christian.huber@inovonics.com**Test Description**De-Bug \_\_\_\_\_ Formal (Initial)  \_\_\_\_\_ Formal (Re-Verification) \_\_\_\_\_**Market Information (Check all that Apply)**USA  Canada  Euro. Union \_\_\_\_\_ Taiwan \_\_\_\_\_ Japan \_\_\_\_\_ New Zealand  Australia 

Other \_\_\_\_\_

**Product Information**Name OT-BTX Model Number EN1249 Serial Number 03566064Name OT-PMT Model Number EN1501 Serial Number 03496989Name OT-UMX Model Number EN1210 Serial Number 03609689Product Dimensions: 1 3/4" x 3 1/2" x 7/8" Weight: 2.3 oz**Product Power Source:****Battery**Type CR123A 3V Lithium

Redundant Power Supply \_\_\_\_\_

**AC Supply**

Input Voltage Range(s) \_\_\_\_\_

Phases \_\_\_\_\_ Delta \_\_\_\_\_ Wye \_\_\_\_\_

Current \_\_\_\_\_

Frequency \_\_\_\_\_

Manufacturer \_\_\_\_\_

Model Number \_\_\_\_\_

**Topology**Linear  Switching Mode \_\_\_\_\_ Switching Frequency \_\_\_\_\_Support Equipment (if used): None**Operation Software:**Name FW-EN1249-V1.0 Version Number 1.0Name FW-EN1501-V2.0 Version Number 2.0Name FW-EN1210-V3.0 Version Number 3.0

Operating Modes: (Please Include Cycle Time)

\_\_\_\_\_

Time necessary for EUT to be exercised and able to fully respond: <.001 seconds.

**Test Type – Emissions (Please check all that apply):**

**Information Technology Equipment**

Class A \_\_\_\_\_

Class B \_\_\_\_\_

Oscillator/Clock Frequencies (MHz) \_\_\_\_\_

**Industrial, Scientific, Medical Equipment**

Class A \_\_\_\_\_

Class B \_\_\_\_\_

Oscillator/Clock Frequencies (MHz) \_\_\_\_\_

**Unintentional Radiator**

Class A \_\_\_\_\_

Class B X \_\_\_\_\_

Oscillator/Clock Frequencies (MHz) 32.768 kHz \_\_\_\_\_

Receiver

Type (Regen., Superhet., Direct Conv., Homodyne) \_\_\_\_\_

Local Oscillator Frequencies \_\_\_\_\_

Frequency Range \_\_\_\_\_

**Intentional Radiator**

Fundamental Frequency Range 902.4 MHz – 927.6 MHz \_\_\_\_\_

Local Oscillator Frequencies None \_\_\_\_\_

Power Output (to antenna) 250mW \_\_\_\_\_

Integral Antenna (Yes/No) Yes \_\_\_\_\_

Modulation Type (AM, CM, Pulse, Spread Spectrum) Spread Spectrum and FSK \_\_\_\_\_

Control Circuits (Microprocessor/Micro-controller) MSP430 \_\_\_\_\_

Oscillator/Clock Frequencies (MHz) 32.768 kHz \_\_\_\_\_

**6.0 APPENDIX D: TEST EQUIPMENT AND CALIBRATION STATUS**

Manufacturer	Name/Description	Model Number	Serial Number	Cal. Due Date
Amplifier Research	E-Field Probe	FP2080	20236	6/19/2008
Antenna Research	1-18 GHz Horn	DRG118/A	1056	6/19/2008
EMCO	Active Loop	6502	2626	6/19/2008
Rohde/ Schwarz	VHF/UHF Receiver	ESVS-30	863342014	7/8/2008
Rohde/ Schwarz	LISN	ESH2-Z5	828739-001	7/8/2008
Rohde/ Schwarz	HF Receiver	ESHS-30	826003/011	7/8/2008
Amplifier Research	E-Field Probe	FP2000	19682	7/11/2008
Veratech	Preamp (AMP2)	unknown	N/A	7/18/2008
EMCO	biconnical antenna	3108	9103-2441	7/22/2008
EMCO	log periodic antenna	3146	9004-2763	7/23/2008
Chase	Bilog 30 - 1000 MHz	CB6111	1121	7/23/2008
FCC	EM Clamp	F2031	309	10/8/2008
FCC	CDN	FCC-801-M3-25	9714	10/8/2008
Amplifier Research	Directional Coupler	DC2600	302981	10/8/2008
Solar Electronics	LISN	8012-50-R-24-BNC	892310	10/8/2008
Amplifier Research	Power Amplifier	100W1000M1	20214	11/4/2008
Amplifier Research	Power Amplifier	150A100A	20183	11/19/2008
Tegam	Current Probe	925236-1	12588	11/19/2008
Haefely Trench	Test Mag	Mag 100	80162	12/12/2008
Hewlett Packard	Tracking Generator	HP85645A	3210A00124	1/8/2009
Hewlett Packard	Spectrum Analyzer Display	HP 85662A	2403A07322	2/4/2009
Hewlett Packard	Spectrum Analyzer	HP 8566B	2421A00527	2/4/2009
Haefely Trench	EFT Tester	PEFT Junior	583-333-51	2/10/2009
Haefely Trench	Surge Coupler	FP-Surge 32.1	083-925-05	2/10/2009
Haefely Trench	Surge Generator	PSURGE 6.1	083-906-07	2/10/2009
Haefely Trench	Interrupter tester	Pline 1610	083-970-07	2/10/2009
Califorina Instruments	AC Power Source Pacs-1	5001iX-CTS-411	55637/ 72242	2/21/2009
Haefely Trench	ESD Gun	PESD 1600	H605100	3/18/2009
Hewlett Packard	Quasi Peak Adapter	85650A	2403A07322	4/11/2009
Microwave Technologies	Standard Gain Horn & Harmonic Mixer	12A-18 & HP1197OK	19527JE & 2332A01314	11/26/2009
EMCO	Horn	3160-08	1147	11/28/2009
Hewlett Packard	Signal Generator	HP 8648D	3642000145	1/7/2010

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## 7.0 APPENDIX E: TEST DIRECTIVES, STANDARDS AND METHODS

### 7.1.1 EUROPEAN DIRECTIVES, STANDARDS AND METHODS

89/336/EEC: Council Directive of 03 May 1989 on the Approximation of the Laws of the Member States Relating to Electromagnetic Compatibility, OJEC No. L 139/19-26, Aug 1993.

BS DD ENV 50204 (CENELEC): Testing and Measurement Techniques; Radiated Electromagnetic Field from Digital Radio Telephones - Immunity Test, 1996.

EN 55011 (CENELEC): ISM Radio-Frequency Equipment Radio Disturbance Characteristics - Limits and Methods of Measurement, 2007.

EN 55014-1 (CENELEC): Part 1. Electromagnetic Compatibility Requirements for Household Appliances, Electric Tools and Similar Apparatus - Part 1. Emission - Product Family Standard, 2006.

EN 55022 (CENELEC): ITE - Radio-Frequency Equipment Radio Disturbance Characteristics - Limits and Methods of Measurement, 2006.

EN 55024 (CENELEC): ITE - Immunity Characteristics - Limits and Methods of Measurement, 2003.

EN 55103-1: Product Family standard for audio, video, audio - visual and entertainment lighting control apparatus for professional use. Part 1: Emissions, April 1997.

EN 55103-2: Product Family standard for audio, video, audio - visual and entertainment lighting control apparatus for professional use. Part 2: Immunity, April 1997.

EN 60601-1-2 (CENELEC): Medical Electrical Equipment. Part 1. General Requirements for Safety - Section 1.2. Collateral Standard: Electromagnetic Compatibility - Requirements and Tests, A1:2006 , A2: 2007.

EN 61000-6-1: EMC- Part 6-1. Generic Standard-Immunity for residential, commercial and light-industrial Environments 2007.

EN 61000-6-2: EMC- Part 6-2. Generic Standard-Immunity for Industrial Environments, 2005.

EN 61000-6-3: EMC- Part 6-3. Generic Standard-Emissions for residential, commercial and light-industrial Environments 2007.

EN61000-6-4 (CENELEC): EMC - Generic Emission Standard, Part 6-4: Industrial Environment, 2007.

EN 61000-3-2 (CENELEC): EMC - Part 2. Limits for Harmonic Current Emissions (Equipment Input Current  $\leq 16$  A per phase), with Amendment 14, 2006.

EN 61000-3-3 (CENELEC): EMC - Part 3. Limitation of Voltage Fluctuation and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current  $\leq 16$  A, 1998, A1:2001, A2:2005, A3:2006.

EN 61000-4-7 (CENELEC): EMC – Part 4-7 Testing and measurement techniques – General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto: 2002, incorporating corrigenda Nos. 1:2004 and 2:2005.

EN 61000-4-2 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 2. Electrostatic Discharge Immunity Test, with Amendments 1 & 2, 2001.

EN 61000-4-3 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 3. Radiated, Radio-Frequency, Electromagnetic Field Immunity, 2006.

EN 61000-4-4 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 4. Electrical Fast Transient/Burst Immunity Test, incorporating corrigendum no. 1: January 2007.

EN 61000-4-5 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 5. Surge Immunity Test, 2006.

EN 61000-4-6 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 6. Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields, 2005, A1: 2007.

EN 61000-4-8 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 8. Power Frequency Magnetic Field Immunity Test, 1993 with the incorporation of amendment A1:2001.

EN 61000-4-11 (CENELEC): EMC - Part 4. Testing and Measurement Techniques; Section 11. Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests, 2004

EN 61326 (CENELEC): Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements, 1997, with the incorporation of amendments A1:1998, A2:2001 and A3:2003.

7.1.2 47 CFR FCC PART 15 RADIO FREQUENCY DEVICES: OCT 2006

Subpart A General.

Subpart B Unintentional Radiators.

Subpart C Intentional Radiators.

Subpart D Unlicensed Personal Communications Service Devices.

7.1.3 47 CFR FCC PART 22 PUBLIC MOBILE SERVICES: OCT 2006

7.1.4 47 CFR FCC PART 24 PERSONAL COMMUNICATIONS SERVICES: OCT 2006

7.1.5 JAPAN

VCCI V-3

7.1.6 CANADA

ICES-001: Interference-Causing Equipment Standard - ISM RF Generators, 2006.

ICES-003: Interference-Causing Equipment Standard - Digital Apparatus, 2004.

7.1.7 AUSTRALIA/NEW ZEALAND

SAA AS/NZ 3548: Limits and Methods of Measurement of Radio Disturbance Characteristics of ITE, 1997.

AS/NZS CISPR22

7.1.8 CHINA

CNS13438, 1997.